WHAT IS CLAIMED IS

1. A fuel cell comprised of a solid electrolyte layer sandwiched by a cathode layer and an anode layer to which a mixed gas of a fuel gas and air mixed together is supplied, wherein:

the fuel cell is formed into a spiral member comprised of a single cell layer comprised of the cathode layer, solid electrolyte layer, and anode layer stacked together or a multilayer member of a plurality of the single cell layers stacked together rolled up spirally,

the cathode layer and anode layer forming facing surfaces of each upper stratum and lower stratum of the single cell layer or multilayer member adjoining each other in a diametrical direction of the spiral member are arranged through an electrical insulator, and

the cathode layer and anode layer or the electrical insulator are or is formed with a gas passage enabling passage of the mixed gas.

2. A fuel cell as set forth in claim 1, wherein said electrical insulator is a porous electrical insulator enabling passage of said mixed gas.

3. A fuel cell as set forth in claim 1, wherein said electrical insulator is comprised of a plurality of spacer members comprised of electrical insulating materials and formed with a gas passage for passage of said mixed gas between adjoining spacer members.

4. A fuel cell as set forth in claim 1, wherein the cathode layer and anode layer of said single cell layer are porous layers enabling passage of said mixed gas.

5. A fuel cell as set forth in claim 1, wherein the cathode layer, solid electrolyte layer, and anode layer of said single cell layer are formed as porous layers enabling passage of said mixed gas.

6. A fuel cell comprised of a solid electrolyte layer sandwiched by a cathode layer and an anode layer to

which a mixed gas of a fuel gas and air mixed together is supplied, wherein:

the fuel cell is formed into a spiral member comprised of a single cell layer comprised of the cathode layer, solid electrolyte layer, and anode layer stacked together or a multilayer member of a plurality of the single cell layers stacked together rolled up spirally,

facing surfaces of each upper stratum and lower stratum of the single cell layer or multilayer member adjoining each other in a diametrical direction of the spiral member are both formed by cathode layers or by anode layers, and

the cathode layer and anode layer or facing surfaces of each upper stratum and lower stratum of the single cell layer or multilayer member have a gas passage enabling passage of the mixed gas formed between them.

7. A fuel cell as set forth in claim 6, wherein said spiral member is a spiral member comprised of said single cell layer or multilayer member rolled up in a state folded so that surfaces of the cathode layer or surfaces of the anode layer face each other.

8. A fuel cell as set forth in claim 6, wherein each of said cathode layer and anode layer is formed as a porous layer enabling passage of said mixed gas.

9. A fuel cell as set forth in claim 6, wherein facing surfaces of each upper stratum and lower stratum of said single cell layer or multilayer member are provided between them with spacer members so as to form a gas passage passing said mixed gas.

10. A fuel cell comprised of a solid electrolyte layer sandwiched by a cathode layer and an anode layer to which a mixed gas of a fuel gas and air mixed together is supplied, wherein:

the fuel cell is formed into a folded member comprised of a single cell layer comprised of the

cathode layer, solid electrolyte layer, and anode layer stacked together or a multilayer member of a plurality of the single cell layers stacked together folded back and forth,

facing surfaces of the adjoining strata of the single cell layer or multilayer member of the folded member are both formed by cathode layers or by anode layers, and

the cathode layer and anode layer or facing surfaces of adjoining strata of the single cell layer or multilayer member have a gas passage enabling passage of the mixed gas formed between them.

11. A fuel cell as set forth in claim 10, wherein each of said cathode layer and anode layer is formed as a porous layer enabling passage of said mixed gas.

12. A fuel cell as set forth in claim 10, wherein facing surfaces of adjoining strata of the single cell layer or multilayer member are provided between them with spacer members so as to form a gas passage enabling passage of said mixed gas.

13. A fuel cell as set forth in claim 10, wherein facing surfaces of adjoining strata of the single cell layer or multilayer member are provided between them with a porous member formed porously so as to enable passage of said mixed gas.